SEQUENCE LISTING

<110> Stephen M. Allen
Saverio C. Falco
Catherine J. Thorpe

<120> Genes Encoding Sulfate Assimilation Proteins

<130> BB-1167

<140> 09/720,317
<141> 21-12-2000

<150> 60/092,833
<151> 14-07-1998

<160> 31

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His Gly Gly Lys Ala Ala Glu Pro Glu Ile Ala Ser Met Ala Val His
     50                  55                  60

Lys Val Ala Pro Pro Pro Ala Arg Ser Thr Ala Ser Lys Met Lys Val
 65                  70                  75                  80

Arg Val Lys Glu Thr Phe Phe Pro Asp Asp Pro Phe Arg Ala Phe Lys
                 85                  90                  95

Gly Gln Pro Pro Gly Thr Gln Trp Leu Met Ala Val Arg Tyr Leu Phe
            100                 105                 110

Pro Ile Leu Asp Trp Val Pro Ser Tyr Ser Leu Ser Leu Phe Lys Ser
        115                 120                 125

Asp Leu Val Ala Gly Leu Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly
    130                 135                 140

Ile Ser Tyr Ala Lys Leu Ala Ser Leu Pro Pro Ile Ile Gly Leu Tyr
145                 150                 155                 160

Ser Ser Phe Val Pro Pro Met Val Tyr Ala Val Leu Gly Ser Ser Arg
                165                 170                 175

Asp Leu Ala Val Gly Pro Val Ser Ile Ser Ser Leu Ile Met Gly Ser
            180                 185                 190

Met Leu Arg Gln Ala Val Ser Pro Thr Ala Glu Pro Thr Leu Phe Leu
        195                 200                 205

Gln Leu Ala Phe Thr Ser Thr Leu Phe Ala Gly Leu Val Gln Ala Ser
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Leu Gly Ile Leu Arg Leu Gly Phe Val Ile Asp Phe Leu Ser Lys Ala
225                 230                 235                 240

Thr Leu Val Gly Phe Met Ala Gly Ala Ala Ile Ile Val Ala Leu Gln
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Gln Leu Lys Gly Leu Leu Gly Ile Val His Phe Thr Thr Glu Met Gly
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Trp Gln Thr Ile Leu Met Gly Val Cys Phe Leu Val Phe Leu Leu Ser
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Ala Arg His Val Ser Ile Arg Trp Pro Lys Leu Phe Trp Val Ser Ala
305                 310                 315                 320

Cys Ala Pro Leu Ala Ser Val Thr Ile Ser Thr Leu Leu Val Phe Leu
                325                 330                 335

Phe Lys Ala Gln Asn His Gly Ile Ser Ile Ile Gly Gln Leu Lys Cys
            340                 345                 350

Gly Leu Asn Arg Pro Ser Trp Asp Lys Leu Leu Phe Asp Thr Ala Tyr
        355                 360                 365

Leu Gly Leu Thr Met Lys Thr Gly Leu Val Thr Gly Ile Ile Ser Leu
    370                 375                 380

Thr Glu Gly Ile Ala Val Gly Arg Thr Phe Ala Ser Leu Lys Asp Tyr
385                 390                 395                 400

Gln Ile Asp Gly Asn Lys Glu Met Met Ala Ile Gly Leu Met Asn Val
                405                 410                 415

Val Gly Ser Cys Thr Ser Cys Tyr Val Thr Thr Gly Ala Phe Ser Arg
            420                 425                 430

Ser Ala Val Asn His Asn Ala Gly Cys Lys Thr Ala Met Ser Asn Val
        435                 440                 445

Ile Met Ala Leu Thr Val Met Val Thr Leu Leu Phe Leu Met Pro Leu
    450                 455                 460

Phe Val Tyr Thr Pro Asn Val Val Leu Gly Ala Ile Ile Ile Ala Ala
465                 470                 475                 480

Val Ile Gly Leu Ile Asp Phe Pro Ala Val Tyr His Ile Trp Lys Met
                485                 490                 495

Asp Lys Met Asp Phe Leu Val Cys Val Cys Ala Phe Ala Gly Val Ile
            500                 505                 510

Phe Ile Ser Val Gln Glu Gly Leu Ala Ile Ala Val Gly Ile Ser Ile
        515                 520                 525

Phe Arg Val Leu Met Gln Ile Thr Arg Pro Lys Met Met Val Gln Gly
    530                 535                 540

Asn Ile Lys Gly Thr Asp Ile Tyr Arg Asp Leu His His Tyr Lys Glu
545                 550                 555                 560

Ala Gln Arg Val Ser Gly Phe Leu Ile Leu Ala Ile Glu Ala Pro Ile
                565                 570                 575

Asn Phe Ala Asn Ser Asn Tyr Leu Asn Glu Arg Ile Lys Arg Trp Ile
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            580                 585                 590

Glu Glu Glu Ser Phe Glu Gln Asp Lys His Thr Glu Leu His Phe Ile
        595                 600                 605

Ile Leu Asp Leu Ser Ala Val Pro Ala Ile Asp Thr Ser Gly Ile Ala
    610                 615                 620

Phe Leu Ile Asp Ile Lys Lys Ser Ile Glu Lys Arg Gly Leu Glu Leu
625                 630                 635                 640

Val Leu Val Asn Pro Thr Gly Glu Val Met Glu Lys Ile Gln Arg Ala
                645                 650                 655

Asn Glu Ala Glu Asn Tyr Phe Arg Pro Asp Cys Leu Tyr Leu Thr Thr
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Gly Glu Ala Ile Ala Ser Leu Ser Ala Leu Ala Lys Met Thr Lys Pro
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<213> Zea mays

<400> 3

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<400> 4

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             20                  25                  30

Leu Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Leu Met
         35                  40                  45

Gly Ser Ser Lys Asp Leu Ala Val Gly Thr Val Ala Val Ala Ser Leu
     50                  55                  60

Leu Ile Ser Ser Met Leu Gly Ser Glu Val Ser Pro Thr Glu Asn Pro
 65                  70                  75                  80

Val Leu Tyr Leu His Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Val
                 85                  90                  95

Phe Gln Ala Ser Leu Gly Leu Leu Arg Leu Gly Phe Ile Val Asp Leu
            100                 105                 110

Leu Ser His Ala Thr Ile Val Gly Phe Met Ala Gly Ala Ala Thr Val
        115                 120                 125

Val Cys Leu Gln Gln Leu Lys Gly Met Leu Gly Leu Val His Phe Thr
    130                 135                 140

Thr Ser Thr Asp Val Val Ser Val Met Glu Ser Val Phe Ser Gln Thr
145                 150                 155                 160

His Gln Trp Arg Trp Glu Ser Val Leu Leu Gly Cys Gly Phe Leu Phe
                165                 170                 175

Phe Leu Leu Val Thr Arg Phe Ile Ser Lys Arg Arg Pro Lys Leu Phe
            180                 185                 190

Trp Ile Ser Ala Ala Ala Pro Leu Thr Ser Val Val Leu Gly Ser Val
        195                 200                 205

Leu Val Tyr Leu Thr His Ala Glu Asn His Gly Ile Glu Val Ile Gly
    210                 215                 220

Tyr Leu Lys Lys Gly Leu Asn Pro Pro Ser Val Thr Ser Leu Gln Phe
225                 230                 235                 240

Ser Pro Pro Tyr Met Met Leu Ala Leu Lys Thr Gly Ile Ile Thr Gly
                245                 250                 255

Val Ile Ala Leu Ala Glu Gly Ile Ala Val Gly Arg Ser Phe Ala Met
            260                 265                 270

Phe Lys Asn Tyr His Met Thr Asp Asn Lys Glu Met Ile Ala Ile Gly
        275                 280                 285
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Thr Met Asn Val Leu Gly Ser Leu Thr Ser Cys Tyr Leu Thr Thr Gly
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Pro Phe Ser Arg Ser Ala Val Asn Tyr Asn Ala Gly Cys Arg Thr Ala
305 310 315 320

Met Ser Asn Val Val Met Ser Leu Ala Val Met Val Thr Leu Leu Phe
325 330 335

Leu Thr Pro Leu Phe His Tyr Thr Pro Leu Val Val Leu Ser Ala Ile
340 345 350

Ile Val Ser Ala Met Leu Gly Leu Val Asp Phe Gly Ala Ala Leu His
355 360 365

Leu Trp Arg Val Asp Lys Val Asp Phe Cys Val Cys Ala Gly Ala Tyr
370 375 380

Leu Gly Val Val Phe Gly Ser Val Glu Val Gly Leu Val Val Ala Val
385 390 395 400

Ala Val Ser Leu Leu Arg Val Leu Leu Phe Val Ala Arg Pro Arg Thr
405 410 415

Thr Val Leu Gly Asn Ile Pro Gly Thr Met Val Tyr Arg Arg Met Asp
420 425 430

Gln Tyr Ala Ala Ala Gln Thr Val Pro Gly Val Leu Val Leu Arg Val
435 440 445

Asp Ala Pro Val Tyr Phe Ala Asn Ala Ser Tyr Leu Arg Glu Arg Ile
450 455 460

Ser Arg Trp Ile Asp Asp Glu Glu Glu Arg Thr Lys Ser Gln Gly Glu
465 470 475 480

Met Gly Val Arg Tyr Val Val Leu Asp Met Gly Ala Ile Gly Ser Ile
485 490 495

Asp Thr Ser Gly Thr Ser Met Leu Asp Glu Leu Asn Lys Ser Leu Asp
500 505 510

Arg Arg Gly Met Gln Ile Val Leu Ala Asn Pro Gly Ser Glu Ile Met
515 520 525

Lys Lys Leu Asp Ser Ser Lys Val Leu Glu Gln Ile Gly His Glu Trp
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Val Phe Pro Thr Val Gly Glu Ala Val Ala Ser Cys Asp Tyr Val Leu
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Ser Met Val

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<212> PRT
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Ser Asn Val Ala Gly Ser Leu Ser Ser Cys Tyr Val Ala Thr Gly Ser
35 40 45

Phe Ser Arg Thr Ala Val Asn Phe Ser Ala Gly Ala Arg Ser Thr Val
50 55 60

Ser Asn Ile Val Met Ser Ile Thr Val Phe Val Thr Leu Glu Leu Phe
65 70 75 80

Met Lys Leu Leu Tyr Tyr Thr Pro Met Ala Val Leu Ala Ser Ile Ile
85 90 95

Leu Ser Ala Leu Pro Gly Leu Ile Asp Ile Lys Glu Ala Cys Ser Ile
100 105 110

Trp Lys Ile Asp Lys Met Asp Phe Leu Thr Cys Leu Gly Ala Phe Val
115 120 125

Gly Val Leu Phe Gly Ser Val Glu Ile Gly Leu Ala Val Ala Leu Gly
130 135 140

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Ile Ser Phe Ala Lys Ile Ile Ile Gln Ser Leu Arg Pro Gln Val Glu
145                 150                 155                 160

Ile Leu Gly Arg Leu Gln Gly Thr Asp Ile Phe Cys Ser Val Arg Gln
                165                 170                 175

Tyr Pro Val Ala Cys Leu Thr Pro Thr Val Leu Pro Ile Arg Val Asp
            180                 185                 190

Thr Ser Phe Leu Cys Phe Ile Asn Ala Thr Ser Val Lys Glu Arg Ile
        195                 200                 205

Thr Glu Trp Val Trp Glu Gly Val Glu Thr Ser Asn Gly Lys Ala Arg
    210                 215                 220

Glu Arg Ile Gln Ala Val Val Leu Asp Met Ser Ser Val Val Asn Ile
225                 230                 235                 240

Asp Thr Ser Gly Leu Thr Ala Leu Glu Glu Ile His Lys Glu Leu Val
                245                 250                 255

Ser Leu Gly Leu Gln Met Ala Ile Ala Ser Pro Gly Trp Lys Ala Val
            260                 265                 270

Gln Lys Met Lys Val Ser Gln Val Val Asp Arg Val Gly Gln Asp Trp
        275                 280                 285

Ile Phe Met Thr Val Gly Glu Ala Val Glu Ala Cys Leu Ala Ala His
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Lys Gly Thr Ala Leu Ala Cys
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<212> DNA
<213> Helianthus tuberosus

<400> 7

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Val Glu Ile Gly Leu Val Ile Ala Val Ala Leu Ser Leu Leu Arg Val
35 40 45

Leu Leu Phe Val Ser Arg Pro Arg Thr Ser Thr Leu Gly Leu Ile Pro
50 55 60

Asp Ser Thr Ile Tyr Arg Ser Met Asp Gln Tyr Gln Asn Ala Lys Ser
65 70 75 80

Val Pro Gly Ile Leu Ile Leu Gln Ile Glu Ala Pro Ile Tyr Phe Ala
85 90 95

Asn Ser Ser Tyr Leu Arg Glu Arg Ile Val Arg Trp Val Asp Glu Glu
100 105 110

Glu Asp Arg Leu Lys Ser Leu Lys Glu Asn Asp Leu Gln Tyr Val Ile
115 120 125

Leu Ala Leu Ser Ala Val Gly Asn Ile Asp Thr Ser Gly Ile Thr Met
130 135 140

Leu Gly Glu Val Lys Lys Val Met Glu Arg Arg Gly Leu Lys Leu Val
145 150 155 160

Leu Ala Asn Pro Gly Gly Glu Val Ile Lys Lys Met Asn Lys Ala Lys
165 170 175

Leu Ile Glu Val Ile Gly Gln Glu Trp Ile Tyr Leu Thr Val Gly Glu
180 185 190

Ala Val Gly Ala Cys Asn Phe Met Leu His Thr Tyr Lys Asn Ala Glu
195 200 205

Lys Pro Thr Ser Gly Ser Glu Ser Gly Lys Glu Ser Arg Asn Asp Asn
210 215 220

Asn Val
225

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<211> 484
<212> DNA
<213> Oryza sativa

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<220>
<221> unsure
<222> (483)
<223> n = A, C, G or T

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gana 484

<210> 10
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<213> Oryza sativa

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Ile Gly Ile Thr Phe Leu Ala Phe Leu Leu Leu Ala Lys Tyr Ile Gly
35 40 45

Lys Lys Asn Arg Lys Phe Phe Trp Val Pro Ala Ile Ala Pro Ile Thr
50 55 60

Ser Val Ile Leu Ala Thr Leu Phe Val Phe Ile Thr Arg Ala Asp Lys
65 70 75 80

Gln Gly Val Gln Ile Val Asn His Ile Lys Lys Gly Ile Asn Pro Ser
85 90 95

Ser Val His Lys Ile Tyr Phe Thr Gly Pro Phe Val Ala Lys Gly Phe
100 105 110

Lys Ile Gly Val Ile Ser Ala Met Ile Gly Leu Thr Glu Ala Val Ala
115 120 125

Ile Gly Xaa Thr Phe Ala Ala Leu Lys Asp Tyr Gln Leu Asp Trp Asn
130 135 140

Lys Glu Met
145

<210> 11
<211> 510

<212> DNA
<213> Oryza sativa

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tggagacgct ggggggggaac atgaaggaga cattcctgcc ggacgacccg ttcagggtgg 240
tgcggcggga gcgcgggtgc gggcggcgcg cggcggcggc gctccggtac gtgttcccgt 300
tcatggagtg ggcgccgtcg tacaccctcg gcaccctcaa gtccgacctc atcgccggca 360
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<212> PRT
<213> Oryza sativa

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Ala Arg Val Pro Met Pro Ala Ala Lys Pro Phe Leu Glu Thr Leu Gly
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Gly Asn Met Lys Glu Thr Phe Leu Pro Asp Asp Pro Phe Arg Val Val
35 40 45

Arg Arg Glu Arg Gly Cys Gly Arg Arg Ala Ala Ala Ala Leu Arg Tyr
50 55 60

Val Phe Pro Phe Met Glu Trp Ala Pro Ser Tyr Thr Leu Gly Thr Leu
65 70 75 80

Lys Ser Asp Leu Ile Ala Gly Thr Pro Leu Pro Ala Ser Ala Ser Arg
85 90 95

Lys Gly

<210> 13
<211> 493
<212> DNA
<213> Oryza sativa

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gcctctgctg tcggtcatcc tgtccaccgc tgcggtctac gcgacaaggg ctgacaggca 180
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<213> Oryza sativa

<220>
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<223> Xaa = any amino acid

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1 5 10 15

Leu Thr Thr Arg Phe Ile Gly Arg Arg Tyr Lys Lys Leu Phe Trp Leu
20 25 30

Ser Ala Ile Ser Pro Leu Leu Ser Val Ile Leu Ser Thr Ala Ala Val
35 40 45

Tyr Ala Thr Arg Ala Asp Arg His Gly Val Lys Ile Ile Gln Lys Val
50 55 60

His Ala Gly Leu Asn Pro Ser Ser Val Xaa Gln Ile His Leu Asn Gly
65 70 75 80

Pro His Thr Thr Glu Cys Ala Gln Asp Arg Arg His Leu Arg Ile Ile
85 90 95

Ala Leu Thr Glu Ala Ile Ala Val Gly Arg Ser Phe Ala Ser Val Arg
100 105 110

Gly Tyr Arg Leu Asp Gly Asn Lys Glu Met Leu Ala Met Gly Phe Ser
115 120 125

Asn Val Ala Gly Ser Leu Ser Ser Cys Tyr Val Ala Thr Gly Ser Phe
130 135 140

Ser Arg Thr Ala Val Asn Phe Ser Gly Gly Gly Gln Ser Thr Val
145 150 155

<210> 15
<211> 2067
<212> DNA
<213> Glycine max

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acttcagtat ctcttcccca ttttcgactg ggccccaaac tacaatctta cccttctccg 180
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<210> 16
<211> 621
<212> PRT
<213> Glycine max

<400> 16

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             20                  25                  30

Arg Phe Lys Lys Phe Leu Leu Ala Leu Gln Tyr Leu Phe Pro Ile Phe
         35                  40                  45

Asp Trp Ala Pro Asn Tyr Asn Leu Thr Leu Leu Arg Ser Asp Leu Ile
     50                  55                  60

Ser Gly Leu Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly Ile Ser Tyr
 65                  70                  75                  80

Ala Lys Leu Ala Asn Leu Pro Pro Ile Leu Gly Leu Tyr Ser Ser Phe
                 85                  90                  95

Val Pro Pro Leu Ile Tyr Ser Leu Leu Gly Ser Ser Arg His Leu Gly
            100                 105                 110

Val Gly Pro Val Ser Ile Ala Ser Leu Val Met Gly Ser Met Leu Ser
        115                 120                 125

Asp Lys Ile Ser Tyr Thr Gln Glu Pro Ile Leu Tyr Leu Gly Leu Ala
    130                 135                 140

Phe Thr Ala Thr Phe Phe Ala Gly Val Phe Gln Ala Ser Leu Gly Ile
145                 150                 155                 160

Leu Arg Leu Gly Phe Val Ile Asp Phe Leu Ser Lys Ala Thr Leu Val
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Gly Phe Thr Gly Gly Ala Ala Ile Ile Val Ser Leu Gln Gln Leu Lys
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            180                 185                 190

Gly Leu Leu Gly Ile Val His Phe Thr Ser Lys Met Gln Ile Ile Pro
        195                 200                 205

Val Thr Ile Ser Val Phe Lys Gln Arg His Glu Trp Ser Trp Gln Thr
    210                 215                 220

Ile Leu Leu Gly Phe Gly Phe Leu Val Phe Leu Leu Thr Thr Arg His
225                 230                 235                 240

Ile Ser Leu Arg Lys Pro Lys Leu Phe Trp Val Ser Ala Ala Ala Pro
                245                 250                 255

Leu Thr Ser Val Ile Leu Ser Thr Ile Leu Val Phe Leu Leu Arg Asn
            260                 265                 270

Lys Thr His Gln Ile Ser Val Ile Gly His Leu Pro Lys Gly Val Asn
        275                 280                 285

Pro Pro Ser Ala Asn Met Leu Tyr Phe Asn Gly Pro Tyr Leu Gly Leu
    290                 295                 300

Ala Ile Lys Thr Gly Ile Ile Thr Gly Ile Leu Ser Leu Thr Glu Gly
305                 310                 315                 320

Ile Ala Val Gly Arg Thr Phe Ala Ser Leu Lys Asn Tyr Gln Val Asp
                325                 330                 335

Gly Asn Lys Glu Met Met Ala Ile Gly Leu Met Asn Ile Ala Gly Ser
            340                 345                 350

Cys Ser Ser Cys Tyr Val Thr Thr Gly Ser Phe Ser Arg Ser Ala Val
        355                 360                 365

Asn Tyr Asn Ala Gly Ala Gln Thr Thr Val Ser Asn Ile Ile Met Ala
    370                 375                 380

Ala Ala Val Leu Val Thr Leu Leu Phe Leu Met Pro Leu Phe Tyr Tyr
385                 390                 395                 400

Thr Pro Asn Val Val Leu Ala Ala Ile Ile Ile Thr Ala Val Ile Gly
                405                 410                 415

Leu Ile Asp Tyr Gln Ser Ala Tyr Lys Leu Trp Lys Val Asp Lys Leu
            420                 425                 430

Asp Phe Leu Ala Cys Leu Cys Ser Phe Phe Gly Val Leu Phe Ile Ser
        435                 440                 445

Val Pro Leu Gly Leu Gly Ile Ala Val Ile Ile Ser Val Leu Lys Ile
    450                 455                 460

Leu Leu His Val Thr Arg Pro Asn Thr Leu Val Leu Gly Asn Ile Pro
465                 470                 475                 480

Gly Thr Gln Ile Phe His Asn Ile Asn Gln Tyr Lys Lys Ala Leu Arg
                485                 490                 495

Val Pro Ser Phe Leu Ile Leu Ala Val Glu Ser Pro Ile Tyr Phe Ala
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            500                 505                 510

Asn Ser Thr Tyr Leu Gln Glu Arg Ile Leu Arg Trp Val Arg Glu Glu
        515                 520                 525

Glu Glu His Ile Lys Ala Asn Asn Gly Ala Pro Leu Lys Cys Ile Ile
    530                 535                 540

Leu Asp Met Thr Ala Val Thr Ala Thr Asp Thr Ser Gly Leu Asp Thr
545                 550                 555                 560

Leu Cys Glu Leu Arg Lys Met Leu Glu Lys Arg Ser Leu Glu Phe Val
                565                 570                 575

Leu Ala Asn Pro Val Gly Asn Val Met Glu Lys Leu His Lys Ser Asn
            580                 585                 590

Ile Leu Asp Ser Phe Gly Leu Lys Gly Val Tyr Leu Thr Val Gly Glu
        595                 600                 605

Ala Val Thr Asp Ile Ser Ser Ile Trp Lys Ala Gln Pro
    610                 615                 620
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<210> 17
<211> 2449
<212> DNA
<213> Glycine max

<400> 17

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gaaggagact ttcttccctg atgacccttt gaggcagttc aagaacaagc cagcttccaa  240
gaagttcatg cttggccttc agttcttctt ccccattttc gaatgggctc ccaaatacac  300
ctttcagttc ttgaaagctg acctcatagc tggcatcacc atcgctagct tggccattcc  360
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<210> 18
<211> 680
<212> PRT
<213> Glycine max

<400> 18

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             20                  25                  30

Leu Gly Met Asn Asn Phe Glu Arg Val His Gln Val Glu Val Pro Pro
         35                  40                  45

Pro Gln Pro Phe Phe Lys Ser Leu Lys Tyr Ser Leu Lys Glu Thr Phe
     50                  55                  60

Phe Pro Asp Asp Pro Leu Arg Gln Phe Lys Asn Lys Pro Ala Ser Lys
 65                  70                  75                  80

Lys Phe Met Leu Gly Leu Gln Phe Phe Phe Pro Ile Phe Glu Trp Ala
                 85                  90                  95

Pro Lys Tyr Thr Phe Gln Phe Leu Lys Ala Asp Leu Ile Ala Gly Ile
            100                 105                 110

Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu
        115                 120                 125

Ala Asn Leu Pro Pro Ile Leu Gly Leu Tyr Ser Ser Phe Ile Pro Pro
    130                 135                 140

Leu Ile Tyr Ala Met Met Gly Ser Ser Arg Asp Leu Ala Val Gly Thr
145                 150                 155                 160

Val Ala Val Gly Ser Leu Leu Met Gly Ser Met Leu Ser Asn Ala Val
                165                 170                 175

Asp Pro Asn Glu Asp Pro Lys Leu Tyr Leu His Leu Ala Phe Thr Ala
            180                 185                 190

Thr Leu Phe Ala Gly Val Phe Gln Ala Ala Leu Gly Leu Phe Arg Leu
        195                 200                 205

Gly Leu Ile Val Asp Phe Leu Ser His Ala Thr Ile Ile Gly Phe Met
    210                 215                 220

Gly Gly Ala Ala Thr Val Val Cys Leu Gln Gln Leu Lys Ser Ile Leu
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225 230 235 240

Gly Leu Glu His Phe Thr His Gly Ala Asp Ile Ile Ser Val Met Arg
245 250 255

Ser Val Phe Thr Gln Thr His Glu Trp Arg Trp Glu Ser Ala Val Leu
260 265 270

Gly Cys Val Phe Ile Phe Phe Leu Leu Ser Thr Arg Tyr Phe Ser Lys
275 280 285

Lys Arg Pro Arg Phe Phe Trp Val Ser Ala Met Ala Pro Leu Thr Ser
290 295 300

Val Ile Leu Gly Ser Leu Leu Val Tyr Phe Thr His Ala Glu Lys His
305 310 315 320

Gly Val Glu Val Ile Gly Glu Leu Lys Lys Gly Leu Asn Pro Pro Ser
325 330 335

Leu Thr Asn Leu Val Phe Val Ser Pro Tyr Met Thr Thr Ala Val Lys
340 345 350

Thr Gly Ile Val Val Gly Ile Ile Ser Leu Ala Glu Gly Ile Ala Val
355 360 365

Gly Arg Ser Phe Ala Met Tyr Lys Asn Tyr Asn Ile Asp Gly Asn Lys
370 375 380

Glu Met Ile Ala Ile Gly Thr Met Asn Val Val Gly Ser Phe Thr Ser
385 390 395 400

Cys Tyr Leu Thr Thr Gly Pro Phe Ser Arg Ser Ala Val Asn Tyr Asn
405 410 415

Ala Gly Cys Lys Thr Ala Ala Ser Asn Ile Ile Met Ser Leu Ala Val
420 425 430

Met Leu Thr Leu Leu Phe Leu Thr Pro Leu Phe His Tyr Thr Pro Leu
435 440 445

Val Val Leu Ser Ala Ile Ile Val Ser Ala Met Leu Gly Leu Ile Asp
450 455 460

Tyr Glu Ala Ala Ile His Leu Phe Lys Val Asp Lys Phe Asp Phe Val
465 470 475 480

Val Cys Met Ser Ala Tyr Ile Gly Val Val Phe Gly Ser Val Glu Ile
485 490 495

Gly Leu Val Ile Ala Ile Val Ile Ser Val Leu Arg Val Leu Leu Phe
500 505 510

Ile Ala Arg Pro Arg Thr Phe Val Leu Gly Asn Ile Pro Asn Ser Val
515 520 525

Ile Tyr Arg Asn Val Glu His Tyr Gln Asn Ala Lys His Val Pro Gly
530 535 540

Met Leu Ile Leu Glu Ile Asp Ala Pro Ile Tyr Phe Ala Asn Ala Ser

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545                 550                 555                 560

Tyr Leu Arg Glu Arg Ile Thr Arg Trp Ile Asp Glu Glu Glu Glu Arg
                565                 570                 575

Ile Lys Ala Thr Gly Glu Thr Ser Leu Gln Tyr Val Ile Ile Asp Met
            580                 585                 590

Ser Ala Val Gly Asn Ile Asp Thr Ser Gly Ile Ser Met Leu Glu Glu
        595                 600                 605

Val Lys Lys Ile Thr Glu Arg Arg Glu Leu Gln Leu Val Leu Val Asn
    610                 615                 620

Pro Val Ser Glu Val Met Lys Lys Leu Asn Lys Ser Lys Phe Gln Asn
625                 630                 635                 640

His Leu Gly Lys Lys Trp Ile Tyr Leu Thr Val Glu Glu Ala Val Gly
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Ala Cys Asn Phe Asn Leu Arg Ala Ser Lys Thr Asn Pro Lys Lys Asp
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Glu Thr Glu Gly Trp Asn Asn Val
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<210> 19
<211> 2311
<212> DNA
<213> Triticum aestivum

<400> 19

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2311

<210> 20
<211> 656
<212> PRT
<213> Triticum aestivum

<400> 20
Met Val His His Ile Ser Asp Glu Ala Ala Asp Glu Pro Ser Ile Thr
1 5 10 15

Thr Gln Thr Pro Pro Asn Asp Pro Ser Gln Ala Pro Leu Val Tyr Lys
20 25 30

Val Gly Tyr Pro Pro Pro Lys Asn Leu Ala Thr Glu Phe Thr Glu Thr
35 40 45

Leu Arg Glu Thr Phe Phe His Asp Asn Pro Leu Arg Gln Tyr Lys Gly
50 55 60

Gln Ser Gly Pro Arg Arg Phe Met Met Gly Leu Glu Phe Leu Phe Pro
65 70 75 80

Ile Phe Gly Trp Gly Arg Asp Tyr Ser Leu Asn Lys Phe Lys Gly Asp
85 90 95

Leu Ile Ala Gly Leu Thr Ile Ala Ser Leu Cys Ile Pro Gln Asp Ile
100 105 110

Gly Tyr Ser Lys Leu Ala Asn Leu Asp Pro Gln Tyr Gly Leu Tyr Ser
115 120 125

Ser Phe Ile Pro Pro Leu Ile Tyr Ala Ala Met Gly Ser Ser Arg Asp
130 135 140

Ile Ala Ile Gly Pro Val Ala Val Val Ser Leu Leu Ile Gly Ser Leu
145 150 155 160

Leu Gln Ala Glu Val Asp His Val Lys Asn Lys Glu Glu Tyr Met Arg
165 170 175

Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Ile Thr Gln Ala Ala Leu
180 185 190

Gly Phe Leu Arg Leu Gly Phe Leu Ile Glu Phe Leu Ser His Ala Ala
195 200 205

Ile Val Gly Phe Met Gly Gly Ala Ala Ile Thr Ile Ala Leu Gln Gln
210 215 220

```
Leu Lys Tyr Val Leu Gly Ile Ala Asn Phe Thr Arg Lys Thr Asp Ile
225                 230                 235                 240

Val Ser Val Met Glu Ser Val Trp Arg Ser Val His His Gly Trp Asn
                245                 250                 255

Trp Gln Thr Ile Val Ile Gly Val Ser Phe Leu Val Phe Leu Leu Phe
            260                 265                 270

Ala Lys Tyr Ile Gly Lys Lys Lys Arg Lys Leu Phe Trp Val Pro Ala
        275                 280                 285

Ile Ala Pro Ile Ile Ser Val Ile Leu Ala Thr Phe Phe Val Tyr Ile
    290                 295                 300

Thr Arg Ala Asp Lys Gln Gly Val Gln Ile Val Lys His Ile Glu Gln
305                 310                 315                 320

Gly Ile Asn Pro Ser Ser Val His Lys Ile Tyr Phe Thr Gly Pro Phe
                325                 330                 335

Val Ala Lys Gly Phe Lys Ile Gly Val Val Cys Gly Ile Val Gly Leu
            340                 345                 350

Thr Glu Ala Val Ala Ile Gly Arg Thr Phe Ala Ala Met Lys Asp Tyr
        355                 360                 365

Gln Leu Asp Gly Asn Lys Glu Met Val Ala Leu Gly Thr Met Asn Ile
    370                 375                 380

Val Gly Ser Met Thr Ser Cys Tyr Val Thr Thr Gly Ser Phe Ser Arg
385                 390                 395                 400

Ser Ala Val Asn Phe Met Ala Gly Cys Lys Thr Pro Val Ser Asn Val
                405                 410                 415

Val Met Ser Val Val Val Leu Leu Thr Leu Leu Val Ile Thr Pro Leu
            420                 425                 430

Phe Lys Tyr Thr Pro Asn Ala Ile Leu Gly Ser Ile Ile Ile Ser Ala
        435                 440                 445

Val Ile Gly Leu Val Asp Tyr Glu Ala Ala Ile Leu Ile Trp Lys Val
    450                 455                 460

Asp Lys Leu Asp Phe Ile Ala Cys Met Gly Ala Phe Phe Gly Val Val
465                 470                 475                 480

Phe Val Ser Val Glu Ile Gly Leu Leu Ile Ala Val Ala Ile Ser Phe
                485                 490                 495

Ala Lys Ile Leu Leu Gln Val Thr Arg Pro Arg Thr Ala Leu Leu Gly
            500                 505                 510

Asn Leu Pro Gly Thr Thr Ile Tyr Arg Asn Ile Ser Gln Tyr Pro Glu
        515                 520                 525

Ala Lys Leu Thr Pro Gly Val Val Ile Val Arg Val Asp Ser Ala Ile
    530                 535                 540
```

```
Tyr Phe Ser Asn Ser Asn Tyr Val Arg Glu Arg Ile Leu Arg Trp Leu
545                 550                 555                 560

Thr Asp Glu Glu Asp Arg Ala Lys Ala Val Gly Leu Pro Lys Ile Ser
                565                 570                 575

Phe Leu Ile Val Glu Met Ser Pro Val Ile Asp Ile Asp Thr Ser Gly
            580                 585                 590

Ile His Ala Leu Glu Asp Leu Tyr Lys Asn Leu Gln Lys Lys Asp Met
        595                 600                 605

Gln Leu Ile Leu Ser Asn Pro Gly Ser Val Val Ile Glu Lys Leu Gln
    610                 615                 620

Ala Ser Lys Leu Thr Glu His Ile Gly Ser Ser Asn Ile Phe Leu Ala
625                 630                 635                 640

Val Ser Asp Ala Val Arg Phe Cys Thr Thr Lys Ser Met Gln Glu Pro
                645                 650                 655
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<210> 21
<211> 2022
<212> DNA
<213> Triticum aestivum

<400> 21

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ctctcccgtg cttggcgtgg atgcggagct acagatggaa ggaggacttc caggccgacc  120
tcgccgccgg catcactgtc ggcgtcatgc ttgtgcctca ggcaatgtca tatgcaaagc  180
tggctgggct tcacccaatt tatgggctct acacaggctt tgtcccacta tttgtctacg  240
cgatttttgg gtcctcacga caattagcag taggtccagt ggcacttgtc tctctgctag  300
tgtccaatgt tcttgggggt atagttaatt catctagtga gctgtacacg gaattagcca  360
tattattggc attcatggtt ggaatactgg aatgcttgat ggcattgcta agacttggct  420
ggcttattcg tttcattagc cattctgtaa tatctggatt cactacagct tcggccatcg  480
taattggttt gtcccaaatc aagtatttct tgggttacag tgttacaaga agtagcaaaa  540
ttataccact tattgagagt ataattgctg gaatagatca gttctcctgg cctccatttg  600
taatgggatc agcgtttctt gttattcttc taataatgaa aaagctaggg aaaacaaata  660
aaaaattacg tttcctgaga gcttctggtc cactaacagc tgttgttctt ggaacattgt  720
ttgtgaaaat tttccgtcca actgccatat cagtggtagg tgaaataccg caaggccttc  780
ccagtttctc cattcctcga ggatttgaac atctgatgtc cctaatgcca actgcaatac  840
ttatcactgg tgttgctatt ttggagtctg ttgggattgc taaagcgtta gctgcgaaga  900
atggttatga gttggactca aacaaagagt tatttggcct tggcttatca aatatatgcg  960
gttcattctt ctctgcatat cctgctacag gctccttttc taggtctgct gtgaatcatg 1020
aaagcggggc aaagactgga ttatcaggaa tcataatggg cataataatt tgcagtgctc 1080
tcttgtttat gacaccatta tttactgata tacctcagtg tgcattggct gccattgtga 1140
tttctgctgt cactggcctg gtagattatg aagaggccat cttcctgtgg ggtattgata 1200
agaaggattt ctttctgtgg gcgatgacat ttactacaac cttaactttt ggcattgaga 1260
ttggtgtcct tgttggggtc gggttttcgc tggcatttgt gatccatgaa tctgcaaatc 1320
cgcatatagc tgttttgggc cgtttgcctg gcaccactgt gtacaggaat acattgcagt 1380
accctgaggc ttatacatac aacgggattg ttgttgtccg tgttgatgca ccaatctact 1440
ttgctaacat aagttacata aaggacaggt tgcgtgagta tgagctcaaa ctcccaaatt 1500
caaaccgtgg acctgatgtt ggaagggtgt actttgtgat cctcgagatg tcccctgtta 1560
catacatcga ctcgagcgct gttcaagctc tcaaggacct gcaccaagaa tacaaagcac 1620
gcgacatcca gattgctata gcgaatccta accggcaggt gcacctattg ctgtcaagag 1680
cgggcatcat cgacatgatt ggcgcagggt ggtgtttcgt ccgagtgcac gacgcggtgc 1740
aagtatgcct ccagcatgtg cggagttcat cgtcgaatgc cattaagtta tccccacagg 1800
cgtctgggaa cttgacggag tctcccaagg cgcagcagcg gtatggcttc ctgaggaacc 1860
tctggaaagc acaagacggt aatgggagcg ccggtgacga ggcccaatcg ttgctgcgcc 1920
aaaaccttgt gtagccaatt gtctccctcc ctcagtgcaa tcatgatgca tgcatttgta 1980
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tttgtgttgt tgtatgcatg tagattgtgc aggaaaaaaa aa 2022

<210> 22
<211> 593
<212> PRT
<213> Triticum aestivum

<400> 22

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Thr Arg Ala Ala Met Glu Arg Ala Arg Ala Met Gly Pro Trp Glu Trp
  1               5                  10                  15

Ala Glu Ala Ala Leu Pro Cys Leu Ala Trp Met Arg Ser Tyr Arg Trp
             20                  25                  30

Lys Glu Asp Phe Gln Ala Asp Leu Ala Ala Gly Ile Thr Val Gly Val
         35                  40                  45

Met Leu Val Pro Gln Ala Met Ser Tyr Ala Lys Leu Ala Gly Leu His
     50                  55                  60

Pro Ile Tyr Gly Leu Tyr Thr Gly Phe Val Pro Leu Phe Val Tyr Ala
 65                  70                  75                  80

Ile Phe Gly Ser Ser Arg Gln Leu Ala Val Gly Pro Val Ala Leu Val
                 85                  90                  95

Ser Leu Leu Val Ser Asn Val Leu Gly Gly Ile Val Asn Ser Ser Ser
            100                 105                 110

Glu Leu Tyr Thr Glu Leu Ala Ile Leu Leu Ala Phe Met Val Gly Ile
        115                 120                 125

Leu Glu Cys Leu Met Ala Leu Leu Arg Leu Gly Trp Leu Ile Arg Phe
    130                 135                 140

Ile Ser His Ser Val Ile Ser Gly Phe Thr Thr Ala Ser Ala Ile Val
145                 150                 155                 160

Ile Gly Leu Ser Gln Ile Lys Tyr Phe Leu Gly Tyr Ser Val Thr Arg
                165                 170                 175

Ser Ser Lys Ile Ile Pro Leu Ile Glu Ser Ile Ile Ala Gly Ile Asp
            180                 185                 190

Gln Phe Ser Trp Pro Pro Phe Val Met Gly Ser Ala Phe Leu Val Ile
        195                 200                 205

Leu Leu Ile Met Lys Lys Leu Gly Lys Thr Asn Lys Lys Leu Arg Phe
    210                 215                 220

Leu Arg Ala Ser Gly Pro Leu Thr Ala Val Val Leu Gly Thr Leu Phe
225                 230                 235                 240

Val Lys Ile Phe Arg Pro Thr Ala Ile Ser Val Val Gly Glu Ile Pro
                245                 250                 255

Gln Gly Leu Pro Ser Phe Ser Ile Pro Arg Gly Phe Glu His Leu Met
            260                 265                 270

Ser Leu Met Pro Thr Ala Ile Leu Ile Thr Gly Val Ala Ile Leu Glu
```

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        275                 280                 285

Ser Val Gly Ile Ala Lys Ala Leu Ala Ala Lys Asn Gly Tyr Glu Leu
    290                 295                 300

Asp Ser Asn Lys Glu Leu Phe Gly Leu Gly Leu Ser Asn Ile Cys Gly
305                 310                 315                 320

Ser Phe Phe Ser Ala Tyr Pro Ala Thr Gly Ser Phe Ser Arg Ser Ala
                325                 330                 335

Val Asn His Glu Ser Gly Ala Lys Thr Gly Leu Ser Gly Ile Ile Met
            340                 345                 350

Gly Ile Ile Ile Cys Ser Ala Leu Leu Phe Met Thr Pro Leu Phe Thr
        355                 360                 365

Asp Ile Pro Gln Cys Ala Leu Ala Ala Ile Val Ile Ser Ala Val Thr
    370                 375                 380

Gly Leu Val Asp Tyr Glu Glu Ala Ile Phe Leu Trp Gly Ile Asp Lys
385                 390                 395                 400

Lys Asp Phe Phe Leu Trp Ala Met Thr Phe Thr Thr Thr Leu Thr Phe
                405                 410                 415

Gly Ile Glu Ile Gly Val Leu Val Gly Val Gly Phe Ser Leu Ala Phe
            420                 425                 430

Val Ile His Glu Ser Ala Asn Pro His Ile Ala Val Leu Gly Arg Leu
        435                 440                 445

Pro Gly Thr Thr Val Tyr Arg Asn Thr Leu Gln Tyr Pro Glu Ala Tyr
    450                 455                 460

Thr Tyr Asn Gly Ile Val Val Val Arg Val Asp Ala Pro Ile Tyr Phe
465                 470                 475                 480

Ala Asn Ile Ser Tyr Ile Lys Asp Arg Leu Arg Glu Tyr Glu Leu Lys
                485                 490                 495

Leu Pro Asn Ser Asn Arg Gly Pro Asp Val Gly Arg Val Tyr Phe Val
            500                 505                 510

Ile Leu Glu Met Ser Pro Val Thr Tyr Ile Asp Ser Ser Ala Val Gln
        515                 520                 525

Ala Leu Lys Asp Leu His Gln Glu Tyr Lys Ala Arg Asp Ile Gln Ile
    530                 535                 540

Ala Ile Ala Asn Pro Asn Arg Gln Val His Leu Leu Leu Ser Arg Ala
545                 550                 555                 560

Gly Ile Ile Asp Met Ile Gly Ala Gly Trp Cys Phe Val Arg Val His
                565                 570                 575

Asp Ala Val Gln Val Cys Leu Gln His Val Arg Ser Ser Ser Ser Asn
            580                 585                 590

Ala
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<210> 23
<211> 660
<212> PRT
<213> Sporobolus stapfianus

<400> 23
Met Val Gly Met Arg Val Pro Tyr Gly Gly Ser Tyr Thr Asn Asn Gly
1 5 10 15

Ser Asn Glu Ser Gln Pro Pro Gly Ala Ala Pro Glu Val Pro Ala Met
20 25 30

Val Glu Val His Lys Val Val Pro Pro Pro Pro Gln Ser Thr Ala Ser
35 40 45

Lys Leu Lys Thr Arg Leu Lys Glu Thr Leu Phe Pro Asp Asp Pro Phe
50 55 60

Arg Gly Phe Gln Gly Gln Pro Ala Arg Val Gln Trp Val Leu Ala Val
65 70 75 80

Lys Tyr Leu Phe Pro Ile Leu Asp Trp Leu Pro Ala Tyr Ser Leu Ser
85 90 95

Leu Phe Lys Ser Asp Leu Ile Ala Gly Leu Thr Ile Ala Ser Leu Ala
100 105 110

Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu Ala Asn Leu Pro Pro Leu
115 120 125

Ile Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Val Leu
130 135 140

Gly Ser Ser Arg Asp Leu Ala Val Gly Pro Val Ser Ile Ser Ser Leu
145 150 155 160

Ile Met Gly Pro Cys Cys Ala Ser Arg Gln Pro His Cys Gly Ala Asp
165 170 175

Ala Val Pro Ala Ala Arg Leu His Ala Thr Leu Phe Ala Gly Ile Phe
180 185 190

Gln Ala Ser Leu Gly Ile Leu Arg Leu Gly Phe Ile Ile Asp Phe Leu
195 200 205

Ser Lys Ala Thr Leu Val Gly Phe Met Ala Gly Ala Ala Ile Ile Val
210 215 220

Ser Leu Gln Gln Leu Lys Ala Leu Leu Gly Ile Val His Phe Thr Thr
225 230 235 240

Glu Met Gly Ile Val Pro Val Met Ala Ser Val Phe His His Thr Lys
245 250 255

Glu Trp Ser Trp Gln Thr Ile Leu Met Gly Val Cys Phe Leu Val Phe
260 265 270

Leu Leu Val Ala Arg His Val Ser Ile Arg Trp Pro Arg Leu Phe Trp

```
        275                 280                 285

Val Ser Ala Cys Ala Pro Leu Val Ser Val Ile Ile Ser Thr Leu Val
    290                 295                 300

Val Phe Leu Phe Lys Ala Gln Asn His Gly Ile Ser Ile Ile Gly Gln
305                 310                 315                 320

Leu Lys Cys Gly Leu Asn Arg Pro Ser Trp Asp Lys Thr Asn Ile Asp
                325                 330                 335

Thr Thr Tyr Leu Gly Leu Thr Met Lys Thr Gly Leu Val Thr Gly Ile
            340                 345                 350

Ile Ser Leu Thr Glu Gly Ile Ala Val Gly Arg Thr Phe Ala Ser Leu
        355                 360                 365

Lys Glu Tyr Gln Ile Asp Gly Asn Lys Glu Met Met Ala Ile Gly Leu
    370                 375                 380

Met Asn Val Val Gly Ser Cys Thr Ser Cys Tyr Val Thr Thr Gly Ala
385                 390                 395                 400

Phe Ser Arg Ser Pro Val Asn His Asn Ala Gly Cys Lys Thr Ala Met
                405                 410                 415

Ser Asn Val Ile Met Ala Leu Thr Val Met Val Thr Leu Leu Phe Leu
            420                 425                 430

Met Pro Leu Phe Val Tyr Thr Pro Asn Val Val Leu Gly Ala Ile Ile
        435                 440                 445

Ile Ala Ala Val Ile Gly Leu Ile Asp Ile Pro Ala Val Tyr His Ile
    450                 455                 460

Trp Lys Met Asp Lys Met Asp Phe Leu Val Cys Val Cys Ala Phe Ala
465                 470                 475                 480

Gly Val Leu Phe Ile Ser Val Gln Glu Gly Leu Ala Ile Ala Val Gly
                485                 490                 495

Ile Ser Val Phe Arg Val Leu Leu Gln Ile Thr Arg Pro Lys Ile Thr
            500                 505                 510

Val Gln Gly Asn Ile Met Gly Thr Asp Ile Tyr Arg Asn Leu His Gln
        515                 520                 525

Tyr Lys Asp Ala Gln Arg Ile Pro Gly Phe Leu Ile Leu Ala Thr Glu
    530                 535                 540

Ala Pro Ile Asn Phe Ala Asn Ser Asn Tyr Leu Asn Glu Arg Ile Lys
545                 550                 555                 560

Arg Trp Ile Glu Glu Glu Ser Ser Ala Gln Thr Lys Gln Thr Glu Leu
                565                 570                 575

Arg Phe Val Ile Leu Asp Leu Ser Ala Val Pro Ala Ile Asp Thr Ser
            580                 585                 590

Gly Val Ala Phe Leu Ile Asp Ile Lys Lys Ser Ile Glu Lys Arg Gly
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595 600 605

Leu Glu Leu Val Leu Val Asn Pro Thr Gly Glu Gly His Gly Lys Asn
610 615 620

Thr Ala Ser Glu Arg Gly Thr Gln Ala Phe Gln Val Gly Ile Ala Cys
625 630 635 640

Ile Leu Thr Thr Gly Glu Ala Val Ala Ser Leu Ser Ala Leu Ala Lys
645 650 655

Met Ala Ser Pro
660

<210> 24
<211> 658
<212> PRT
<213> Arabidopsis thaliana

<400> 24
Met Gly Thr Glu Asp Tyr Thr Phe Pro Gln Gly Ala Glu Glu Leu His
1 5 10 15

Arg Arg His His Thr Val Glu Ala Pro Gln Pro Gln Pro Phe Leu Lys
20 25 30

Ser Leu Gln Tyr Ser Val Lys Glu Thr Leu Phe Pro Asp Asp Pro Phe
35 40 45

Arg Gln Phe Lys Asn Gln Asn Ala Ser Arg Lys Phe Val Leu Gly Leu
50 55 60

Lys Tyr Phe Leu Pro Ile Phe Glu Trp Ala Pro Arg Tyr Asn Leu Lys
65 70 75 80

Phe Phe Lys Ser Asp Leu Ile Ala Gly Ile Thr Ile Ala Ser Leu Ala
85 90 95

Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu Ala Asn Leu Pro Pro Ile
100 105 110

Leu Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Val Leu
115 120 125

Gly Ser Ser Arg Asp Leu Ala Val Gly Thr Val Ala Val Ala Ser Leu
130 135 140

Leu Thr Gly Ala Met Leu Ser Lys Glu Val Asp Ala Glu Lys Asp Pro
145 150 155 160

Lys Leu Tyr Leu His Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Val
165 170 175

Leu Glu Ala Ser Leu Gly Ile Phe Arg Leu Gly Phe Ile Val Asp Phe
180 185 190

Leu Ser His Ala Thr Ile Val Gly Phe Met Gly Gly Ala Ala Thr Val
195 200 205

Val Ser Leu Gln Gln Leu Lys Gly Ile Phe Gly Leu Lys His Phe Thr

```
    210                 215                 220

Asp Ser Thr Asp Val Ile Ser Val Met Arg Ser Val Phe Ser Gln Thr
225                 230                 235                 240

His Glu Trp Arg Trp Glu Ser Gly Val Leu Gly Cys Gly Phe Leu Phe
                245                 250                 255

Phe Leu Leu Ser Thr Arg Tyr Phe Ser Ile Lys Lys Pro Lys Phe Phe
            260                 265                 270

Trp Val Ala Ala Met Ala Pro Leu Thr Ser Val Ile Leu Gly Ser Leu
        275                 280                 285

Leu Val Tyr Phe Thr His Ala Glu Arg His Gly Val Gln Val Ile Gly
    290                 295                 300

Asp Leu Lys Lys Gly Leu Asn Pro Leu Ser Gly Ser Asp Leu Ile Phe
305                 310                 315                 320

Thr Ser Pro Tyr Met Ser Thr Ala Val Lys Thr Gly Leu Ile Thr Gly
                325                 330                 335

Ile Ile Ala Leu Ala Glu Gly Ile Ala Val Gly Arg Ser Phe Ala Met
            340                 345                 350

Phe Lys Asn Tyr Asn Ile Asp Gly Asn Lys Glu Met Ile Ala Phe Gly
        355                 360                 365

Met Met Asn Ile Val Gly Ser Phe Thr Ser Cys Tyr Leu Thr Thr Gly
    370                 375                 380

Pro Phe Ser Arg Ser Ala Val Asn Tyr Asn Ala Gly Cys Lys Thr Ala
385                 390                 395                 400

Met Ser Asn Ile Val Met Ala Ile Ala Val Met Phe Thr Leu Leu Phe
                405                 410                 415

Leu Thr Pro Leu Phe His Tyr Thr Pro Leu Val Val Leu Ser Ala Ile
            420                 425                 430

Ile Ile Ser Ala Met Leu Gly Leu Ile Asp Tyr Gln Ala Ala Ile His
        435                 440                 445

Leu Trp Lys Val Asp Lys Phe Asp Phe Leu Val Cys Met Ser Ala Tyr
    450                 455                 460

Val Gly Val Val Phe Gly Ser Val Glu Ile Gly Leu Val Val Ala Val
465                 470                 475                 480

Ala Ile Ser Ile Ala Arg Leu Leu Leu Phe Val Ser Arg Pro Lys Thr
                485                 490                 495

Ala Val Lys Gly Asn Ile Pro Asn Ser Met Ile Tyr Arg Asn Thr Glu
            500                 505                 510

Gln Tyr Pro Ser Ser Arg Thr Val Pro Gly Ile Leu Ile Leu Glu Ile
        515                 520                 525

Asp Ala Pro Ile Tyr Phe Ala Asn Ala Ser Tyr Leu Arg Glu Arg Ile
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```
    530                 535                 540

Ile Arg Trp Ile Asp Glu Glu Glu Glu Arg Val Lys Gln Ser Gly Glu
545                 550                 555                 560

Ser Ser Leu Gln Tyr Ile Ile Leu Asp Met Ser Ala Val Gly Asn Ile
                565                 570                 575

Asp Thr Ser Gly Ile Ser Met Met Val Glu Ile Lys Lys Val Ile Asp
            580                 585                 590

Arg Arg Ala Leu Lys Leu Val Leu Ser Asn Pro Lys Gly Glu Val Val
        595                 600                 605

Lys Lys Leu Thr Arg Ser Lys Phe Ile Gly Asp His Leu Gly Lys Glu
    610                 615                 620

Trp Met Phe Leu Thr Val Gly Glu Ala Val Glu Ala Cys Ser Tyr Met
625                 630                 635                 640

Leu His Thr Phe Lys Thr Glu Pro Ala Ser Lys Asn Glu Pro Trp Asn
                645                 650                 655

Asn Val
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<210> 25
<211> 644
<212> PRT
<213> Stylosanthes hamata

<400> 25

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Met Ser Ser Leu Gly Thr Glu Gln Phe Ser Glu Arg Ser Gln Trp Val
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Leu Asn Ser Pro Asn Pro Pro Pro Leu Thr Lys Lys Phe Leu Gly Pro
             20                  25                  30

Leu Lys Asp Asn Lys Phe Phe Thr Ser Ser Ser Ser Lys Lys Glu Thr
         35                  40                  45

Arg Ala Val Ser Phe Leu Ala Ser Leu Phe Pro Ile Leu Ser Trp Ile
     50                  55                  60

Arg Thr Tyr Ser Ala Thr Lys Phe Lys Asp Asp Leu Leu Ser Gly Leu
 65                  70                  75                  80

Thr Leu Ala Ser Leu Ser Ile Pro Gln Ser Ile Gly Tyr Ala Asn Leu
                 85                  90                  95

Ala Lys Leu Asp Pro Gln Tyr Gly Leu Tyr Thr Ser Val Ile Pro Pro
            100                 105                 110

Val Ile Tyr Ala Leu Met Gly Ser Ser Arg Glu Ile Ala Ile Gly Pro
        115                 120                 125

Val Ala Val Val Ser Met Leu Leu Ser Ser Leu Val Pro Lys Val Ile
    130                 135                 140

Asp Pro Asp Ala His Pro Asn Asp Tyr Arg Asn Leu Val Phe Thr Val
```

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145                 150                 155                 160

Thr Leu Phe Ala Gly Ile Phe Gln Thr Ala Phe Gly Val Leu Arg Leu
                165                 170                 175

Gly Phe Leu Val Asp Phe Leu Ser His Ala Ala Leu Val Gly Phe Met
            180                 185                 190

Ala Gly Ala Ala Ile Val Ile Gly Leu Gln Gln Leu Lys Gly Leu Leu
        195                 200                 205

Gly Leu Thr His Phe Thr Thr Lys Thr Asp Ala Val Ala Val Leu Lys
    210                 215                 220

Ser Val Tyr Thr Ser Leu His Gln Gln Ile Thr Ser Ser Glu Asn Trp
225                 230                 235                 240

Ser Pro Leu Asn Phe Val Ile Gly Cys Ser Phe Leu Ile Phe Leu Leu
                245                 250                 255

Ala Ala Arg Phe Ile Gly Arg Arg Asn Lys Lys Phe Phe Trp Leu Pro
            260                 265                 270

Ala Ile Ala Pro Leu Leu Ser Val Ile Leu Ser Thr Leu Ile Val Phe
        275                 280                 285

Leu Ser Lys Gly Asp Lys His Gly Val Asn Ile Ile Lys His Val Gln
    290                 295                 300

Gly Gly Leu Asn Pro Ser Ser Val His Lys Leu Gln Leu Asn Gly Pro
305                 310                 315                 320

His Val Gly Gln Ala Ala Lys Ile Gly Leu Ile Ser Ala Ile Ile Ala
                325                 330                 335

Leu Thr Glu Ala Ile Ala Val Gly Arg Ser Phe Ala Asn Ile Lys Gly
            340                 345                 350

Tyr His Leu Asp Gly Asn Lys Glu Met Leu Ala Met Gly Cys Met Asn
        355                 360                 365

Ile Ala Gly Ser Leu Thr Ser Cys Tyr Val Ser Thr Gly Ser Phe Ser
    370                 375                 380

Arg Thr Ala Val Asn Phe Ser Ala Gly Cys Lys Thr Ala Val Ser Asn
385                 390                 395                 400

Ile Val Met Ala Val Thr Val Leu Leu Cys Leu Glu Leu Phe Thr Arg
                405                 410                 415

Leu Leu Tyr Tyr Thr Pro Met Ala Ile Leu Ala Ser Ile Ile Leu Ser
            420                 425                 430

Ala Leu Pro Gly Leu Ile Asp Ile Gly Glu Ala Tyr His Ile Trp Lys
        435                 440                 445

Val Asp Lys Phe Asp Phe Leu Ala Cys Leu Gly Ala Phe Phe Gly Val
    450                 455                 460

Leu Phe Val Ser Ile Glu Ile Gly Leu Leu Ile Ala Leu Ser Ile Ser
```

```
465                 470                 475                 480

Phe Ala Lys Ile Leu Leu Gln Ala Ile Arg Pro Gly Val Glu Val Leu
                485                 490                 495

Gly Arg Ile Pro Thr Thr Glu Ala Tyr Cys Asp Val Ala Gln Tyr Pro
            500                 505                 510

Met Ala Val Thr Thr Pro Gly Ile Leu Val Ile Arg Ile Ser Ser Gly
        515                 520                 525

Ser Leu Cys Phe Ala Asn Ala Gly Phe Val Arg Glu Arg Ile Leu Lys
    530                 535                 540

Trp Val Glu Asp Glu Glu Gln Asp Asn Ile Glu Glu Ala Ala Lys Gly
545                 550                 555                 560

Arg Val Gln Ala Ile Ile Ile Asp Met Thr Asp Leu Thr Asn Val Asp
                565                 570                 575

Thr Ser Gly Ile Leu Ala Leu Glu Glu Leu His Lys Lys Leu Leu Ser
            580                 585                 590

Arg Gly Val Glu Leu Ala Met Val Asn Pro Arg Trp Glu Val Ile His
        595                 600                 605

Lys Leu Lys Val Ala Asn Phe Val Asp Lys Ile Gly Lys Glu Arg Val
    610                 615                 620

Phe Leu Thr Val Ala Glu Ala Val Asp Ala Cys Leu Ser Ser Arg Phe
625                 630                 635                 640

Ala Asn Ser Ala


<210>  26
<211>  646
<212>  PRT
<213>  Arabidopsis thaliana

<400>  26
Met Gly Thr Glu Asp Tyr Thr Phe Pro Gln Gly Ala Glu Glu Leu His
  1               5                  10                  15

Arg Arg His His Thr Val Glu Ala Pro Gln Pro Gln Pro Phe Leu Lys
             20                  25                  30

Ser Leu Gln Tyr Ser Val Lys Glu Thr Leu Phe Pro Asp Asp Pro Phe
         35                  40                  45

Arg Gln Phe Lys Asn Gln Asn Ala Ser Arg Lys Phe Val Leu Gly Leu
     50                  55                  60

Lys Tyr Phe Leu Pro Ile Phe Glu Trp Ala Pro Arg Tyr Asn Leu Lys
 65                  70                  75                  80

Phe Phe Lys Ser Asp Leu Ile Ala Gly Ile Thr Ile Ala Ser Leu Ala
                 85                  90                  95

Ile Pro Gln Gly Ile Ser Tyr Ala Lys Leu Ala Asn Leu Pro Pro Ile
```

```
            100                 105                 110

Leu Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Val Leu
        115                 120                 125

Gly Ser Ser Arg Asp Leu Ala Val Gly Thr Val Ala Val Ala Ser Leu
    130                 135                 140

Leu Thr Gly Ala Met Leu Ser Lys Glu Val Asp Ala Glu Lys Asp Pro
145                 150                 155                 160

Lys Leu Tyr Leu His Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Val
                165                 170                 175

Leu Glu Ala Ser Leu Gly Ile Phe Arg Leu Gly Phe Ile Val Asp Phe
            180                 185                 190

Leu Ser His Ala Thr Ile Val Gly Phe Met Gly Gly Ala Ala Thr Val
        195                 200                 205

Val Ser Leu Gln Gln Leu Lys Gly Ile Phe Gly Leu Lys His Phe Thr
    210                 215                 220

Asp Ser Thr Asp Val Ile Ser Val Met Arg Ser Val Phe Ser Gln Thr
225                 230                 235                 240

His Glu Trp Arg Trp Glu Ser Gly Val Leu Gly Cys Gly Phe Leu Phe
                245                 250                 255

Phe Leu Leu Ser Thr Arg Tyr Phe Ser Ile Lys Lys Pro Lys Phe Phe
            260                 265                 270

Trp Val Ala Ala Met Ala Pro Leu Thr Ser Val Ile Leu Gly Ser Leu
        275                 280                 285

Leu Val Tyr Phe Thr His Ala Glu Arg His Gly Val Gln Val Gly Ser
    290                 295                 300

Asp Leu Ile Phe Thr Ser Pro Tyr Met Ser Thr Ala Val Lys Thr Gly
305                 310                 315                 320

Leu Ile Thr Gly Ile Ile Ala Leu Ala Glu Gly Val Ala Val Gly Arg
                325                 330                 335

Ser Phe Ala Met Phe Lys Asn Tyr Asn Ile Asp Gly Asn Lys Glu Met
            340                 345                 350

Ile Ala Phe Gly Met Met Asn Ile Val Gly Ser Phe Thr Ser Cys Tyr
        355                 360                 365

Leu Thr Thr Gly Pro Phe Ser Arg Ser Ala Val Asn Tyr Asn Ala Gly
    370                 375                 380

Cys Lys Thr Ala Met Ser Asn Ile Val Met Ala Ile Ala Val Met Phe
385                 390                 395                 400

Thr Leu Leu Phe Leu Thr Pro Leu Phe His Tyr Thr Pro Leu Val Val
                405                 410                 415

Leu Ser Ala Ile Ile Ile Ser Ala Met Leu Gly Leu Ile Asp Tyr Gln
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            420                 425                 430

Ala Ala Ile His Leu Trp Lys Val Asp Lys Phe Asp Phe Leu Val Cys
        435                 440                 445

Met Ser Ala Tyr Val Gly Val Val Phe Gly Ser Val Glu Ile Gly Leu
    450                 455                 460

Val Val Ala Val Ala Ile Ser Ile Ala Arg Leu Leu Leu Phe Val Ser
465                 470                 475                 480

Arg Pro Lys Thr Ala Val Lys Gly Asn Ile Pro Asn Ser Met Ile Tyr
                485                 490                 495

Arg Asn Thr Glu Gln Tyr Pro Ser Ser Arg Thr Val Pro Gly Ile Leu
            500                 505                 510

Ile Leu Glu Ile Asp Ala Pro Ile Tyr Phe Ala Asn Ala Ser Tyr Leu
        515                 520                 525

Arg Glu Arg Ile Ile Arg Trp Ile Asp Glu Glu Glu Glu Arg Val Lys
    530                 535                 540

Gln Ser Gly Glu Ser Ser Leu Gln Tyr Ile Ile Leu Asp Met Ser Ala
545                 550                 555                 560

Val Gly Asn Ile Asp Thr Ser Gly Ile Ser Met Met Val Glu Ile Lys
                565                 570                 575

Lys Val Ile Asp Arg Arg Ala Leu Lys Leu Val Leu Ser Asn Pro Lys
            580                 585                 590

Gly Glu Val Val Lys Lys Leu Thr Arg Ser Lys Phe Ile Gly Asp His
        595                 600                 605

Leu Gly Lys Glu Trp Met Phe Leu Thr Val Gly Glu Ala Val Glu Ala
    610                 615                 620

Cys Ser Tyr Met Leu His Thr Phe Lys Thr Glu Pro Ala Ser Lys Asn
625                 630                 635                 640

Glu Pro Trp Asn Asn Val
                645

<210>  27
<211>  233
<212>  PRT
<213>  Zea mays

<400>  27
Ala Ile Gly Pro Val Ala Val Val Ser Leu Leu Leu Gly Thr Leu Leu
  1               5                  10                  15

Gln Asn Glu Ile Asp Pro Lys Thr His Pro Leu Glu Tyr Arg Arg Leu
            20                  25                  30

Ala Phe Thr Ala Thr Phe Phe Ala Gly Val Thr Gln Ala Ala Leu Gly
        35                  40                  45

Phe Phe Arg Leu Gly Phe Ile Ile Glu Phe Leu Ser His Ala Ala Ile
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     50                  55                  60

Val Gly Phe Met Ala Gly Ala Ala Ile Thr Ile Ala Leu Gln Gln Leu
 65                  70                  75                  80

Lys Gly Phe Leu Gly Ile Ala Asn Phe Thr Lys Lys Ser Asp Ile Val
                 85                  90                  95

Ser Val Met Lys Ser Val Trp Gly Asn Val His His Gly Trp Asn Trp
            100                 105                 110

Gln Thr Ile Leu Ile Gly Ala Thr Phe Leu Ala Phe Leu Leu Val Ala
        115                 120                 125

Lys Tyr Ile Gly Lys Arg Asn Lys Lys Leu Phe Trp Val Ser Ala Ile
    130                 135                 140

Ala Pro Leu Thr Ser Val Ile Ile Ser Thr Phe Phe Val Tyr Ile Thr
145                 150                 155                 160

Arg Ala Asp Lys His Gly Val Ala Ile Val Lys Asn Ile Arg Lys Gly
                165                 170                 175

Ile Asn Pro Pro Ser Ala Ser Leu Ile Tyr Phe Thr Gly Pro Tyr Leu
            180                 185                 190

Ala Thr Gly Phe Lys Ile Gly Ile Val Ala Gly Met Ile Gly Leu Thr
        195                 200                 205

Glu Ala Ile Ala Ile Gly Arg Thr Phe Ala Ala Leu Lys Asp Tyr Arg
    210                 215                 220

Ile Asp Gly Asn Lys Glu Met Val Ala
225                 230

<210>  28
<211>  646
<212>  PRT
<213>  Arabidopsis thaliana

<400>  28
Met Ser Ser Lys Arg Ala Ser Gln Tyr His Gln Val Glu Ile Pro Pro
  1               5                  10                  15

Pro Gln Pro Phe Leu Lys Ser Leu Lys Asn Thr Leu Asn Glu Ile Leu
             20                  25                  30

Phe Ala Asp Asp Pro Phe Arg Arg Ile Arg Asn Glu Ser Lys Thr Ser
         35                  40                  45

Lys Lys Ile Glu Leu Gly Leu Arg His Val Phe Pro Ile Leu Glu Trp
     50                  55                  60

Ala Arg Gly Tyr Ser Leu Glu Tyr Leu Lys Ser Asp Val Ile Ser Gly
 65                  70                  75                  80

Ile Thr Ile Ala Ser Leu Ala Ile Pro Gln Gly Ile Ser Tyr Ala Gln
                 85                  90                  95

Leu Ala Asn Leu Pro Pro Ile Leu Gly Leu Tyr Ser Ser Leu Val Pro
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```
            100                 105                 110

Pro Leu Val Tyr Ala Ile Met Gly Ser Ser Arg Asp Leu Ala Val Gly
        115                 120                 125

Thr Val Ala Val Ala Ser Leu Leu Thr Ala Ala Met Leu Gly Lys Glu
    130                 135                 140

Val Asn Ala Val Val Asn Pro Lys Leu Tyr Leu His Leu Ala Phe Thr
145                 150                 155                 160

Ala Thr Phe Phe Ala Gly Leu Met Gln Thr Cys Leu Gly Leu Leu Arg
                165                 170                 175

Leu Gly Phe Val Val Glu Ile Leu Ser His Ala Ala Ile Val Gly Phe
            180                 185                 190

Met Gly Gly Ala Ala Thr Val Val Cys Leu Gln Gln Leu Lys Gly Leu
        195                 200                 205

Leu Gly Leu His His Phe Thr His Ser Thr Asp Ile Val Thr Val Leu
    210                 215                 220

Arg Ser Ile Phe Ser Gln Ser His Met Trp Arg Trp Glu Ser Gly Val
225                 230                 235                 240

Leu Gly Cys Cys Phe Leu Ile Phe Leu Leu Thr Thr Lys Tyr Ile Ser
                245                 250                 255

Lys Lys Arg Pro Lys Leu Phe Trp Ile Ser Ala Met Ser Pro Leu Val
            260                 265                 270

Ser Val Ile Phe Gly Thr Ile Phe Leu Tyr Phe Leu His Asp Gln Phe
        275                 280                 285

His Gly Ile Gln Phe Ile Gly Glu Leu Lys Lys Gly Ile Asn Pro Pro
    290                 295                 300

Ser Ile Thr His Leu Val Phe Thr Pro Pro Tyr Val Met Leu Ala Leu
305                 310                 315                 320

Lys Val Gly Ile Ile Thr Gly Val Ile Ala Leu Ala Glu Gly Ile Ala
                325                 330                 335

Val Gly Arg Ser Phe Ala Met Tyr Lys Asn Tyr Asn Ile Asp Gly Asn
            340                 345                 350

Lys Glu Met Ile Ala Phe Gly Met Met Asn Ile Leu Gly Ser Phe Ser
        355                 360                 365

Ser Cys Tyr Leu Thr Thr Gly Pro Phe Ser Arg Ser Ala Val Asn Tyr
    370                 375                 380

Asn Ala Gly Cys Lys Thr Ala Leu Ser Asn Val Val Met Ala Val Ala
385                 390                 395                 400

Val Ala Val Thr Leu Leu Phe Leu Thr Pro Leu Phe Phe Tyr Thr Pro
                405                 410                 415

Leu Val Val Leu Ser Ser Ile Ile Ile Ala Ala Met Leu Gly Leu Val
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            420                 425                 430

Asp Tyr Glu Ala Ala Ile His Leu Trp Lys Leu Asp Lys Phe Asp Phe
        435                 440                 445

Phe Val Cys Leu Ser Ala Tyr Leu Gly Val Val Phe Gly Thr Ile Glu
    450                 455                 460

Ile Gly Leu Ile Leu Ser Val Gly Ile Ser Val Met Arg Leu Val Leu
465                 470                 475                 480

Phe Val Gly Arg Pro Lys Ile Tyr Val Met Gly Asn Ile Gln Asn Ser
                485                 490                 495

Glu Ile Tyr Arg Asn Ile Glu His Tyr Pro Gln Ala Ile Thr Arg Ser
            500                 505                 510

Ser Leu Leu Ile Leu His Ile Asp Gly Pro Ile Tyr Phe Ala Asn Ser
        515                 520                 525

Thr Tyr Leu Arg Asp Arg Ile Gly Arg Trp Ile Asp Glu Glu Glu Asp
    530                 535                 540

Lys Leu Arg Thr Ser Gly Asp Ile Ser Leu Gln Tyr Ile Val Leu Asp
545                 550                 555                 560

Met Ser Ala Val Gly Asn Ile Asp Thr Ser Gly Ile Ser Met Leu Glu
                565                 570                 575

Glu Leu Asn Lys Ile Leu Gly Arg Arg Glu Leu Lys Leu Val Ile Ala
            580                 585                 590

Asn Pro Gly Ala Glu Val Met Lys Lys Leu Ser Lys Ser Thr Phe Ile
        595                 600                 605

Glu Ser Ile Gly Lys Glu Arg Ile Tyr Leu Thr Val Ala Glu Ala Val
    610                 615                 620

Ala Ala Cys Asp Phe Met Leu His Thr Ala Lys Pro Asp Ser Pro Val
625                 630                 635                 640

Pro Glu Phe Asn Asn Val
                645

<210>  29
<211>  631
<212>  PRT
<213>  Arabidopsis thaliana

<400>  29
Met Glu Val His Lys Val Val Ala Pro Pro His Lys Ser Thr Val Ala
  1               5                  10                  15

Lys Leu Lys Thr Lys Leu Lys Glu Thr Phe Phe Pro Asp Asp Pro Leu
             20                  25                  30

Arg Gln Phe Arg Gly Gln Pro Asn Arg Thr Lys Leu Ile Arg Ala Ala
         35                  40                  45

Gln Tyr Ile Phe Pro Ile Leu Gln Trp Cys Pro Glu Tyr Ser Phe Ser
```

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     50                  55                  60

Leu Leu Lys Ser Asp Val Val Ser Gly Leu Thr Ile Ala Ser Leu Ala
 65                  70                  75                  80

Ile Pro Gln Gly Ile Ser Tyr Ala Asn Val Ala Asn Leu Pro Pro Ile
                85                  90                  95

Val Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Val Tyr Ala Val Leu
            100                 105                 110

Gly Ser Ser Arg Asp Leu Ala Val Gly Pro Val Ser Ile Ala Ser Leu
        115                 120                 125

Ile Leu Gly Ser Met Leu Arg Gln Gln Val Ser Pro Val Asp Asp Pro
    130                 135                 140

Val Leu Phe Leu Gln Leu Ala Phe Ser Ser Thr Phe Phe Ala Gly Leu
145                 150                 155                 160

Phe Gln Ala Ser Leu Gly Ile Leu Arg Leu Gly Phe Ile Ile Asp Phe
                165                 170                 175

Leu Ser Lys Ala Thr Leu Ile Gly Phe Met Gly Gly Ala Ala Ile Ile
            180                 185                 190

Val Ser Leu Gln Gln Leu Lys Gly Leu Leu Gly Ile Thr His Phe Thr
        195                 200                 205

Lys His Met Ser Val Val Pro Val Leu Ser Ser Val Phe Gln His Thr
    210                 215                 220

Asn Glu Trp Ser Trp Gln Thr Ile Val Met Gly Val Cys Phe Leu Leu
225                 230                 235                 240

Phe Leu Leu Ser Thr Arg His Leu Ser Met Lys Lys Pro Lys Leu Phe
                245                 250                 255

Trp Val Ser Ala Gly Ala Pro Leu Leu Ser Val Ile Val Ser Thr Leu
            260                 265                 270

Leu Val Phe Val Phe Arg Ala Glu Arg His Gly Ile Ser Val Ile Gly
        275                 280                 285

Lys Leu Pro Glu Gly Leu Asn Pro Pro Ser Trp Asn Met Leu Gln Phe
    290                 295                 300

His Gly Ser His Leu Ala Leu Val Ala Lys Thr Gly Leu Val Thr Gly
305                 310                 315                 320

Ile Val Ser Leu Thr Glu Gly Ile Ala Val Gly Arg Thr Phe Ala Ala
                325                 330                 335

Leu Lys Asn Tyr His Val Asp Gly Asn Lys Glu Met Ile Ala Ile Gly
            340                 345                 350

Leu Met Asn Val Val Gly Ser Ala Thr Ser Cys Tyr Val Thr Thr Gly
        355                 360                 365

Ala Phe Ser Arg Ser Ala Val Asn Asn Asn Ala Gly Ala Lys Thr Ala
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    370                 375                 380

Val Ser Asn Ile Val Met Ser Val Thr Val Met Val Thr Leu Leu Phe
385                 390                 395                 400

Leu Met Pro Leu Phe Glu Tyr Thr Pro Asn Val Val Leu Gly Ala Ile
                405                 410                 415

Ile Val Thr Ala Val Ile Gly Leu Ile Asp Leu Pro Ala Ala Cys His
            420                 425                 430

Ile Trp Lys Ile Asp Lys Phe Asp Phe Leu Val Met Leu Cys Ala Phe
        435                 440                 445

Phe Gly Val Ile Phe Leu Ser Val Gln Asn Gly Leu Ala Ile Ala Val
    450                 455                 460

Gly Leu Ser Leu Phe Lys Ile Leu Met Gln Val Thr Arg Pro Lys Met
465                 470                 475                 480

Val Ile Met Gly Asn Ile Pro Gly Thr Asp Ile Tyr Arg Asp Leu His
                485                 490                 495

His Tyr Lys Glu Ala Gln Arg Ile Pro Gly Phe Leu Val Leu Ser Ile
            500                 505                 510

Glu Ser Pro Val Asn Phe Ala Asn Ser Asn Tyr Leu Thr Glu Arg Thr
        515                 520                 525

Ser Arg Trp Ile Glu Glu Cys Glu Glu Glu Glu Ala Gln Glu Lys His
    530                 535                 540

Ser Ser Leu Gln Phe Leu Ile Leu Glu Met Ser Ala Val Ser Gly Val
545                 550                 555                 560

Asp Thr Asn Gly Val Ser Phe Phe Lys Glu Leu Lys Lys Thr Thr Ala
                565                 570                 575

Lys Lys Asp Ile Glu Leu Val Phe Val Asn Pro Leu Ser Glu Val Val
            580                 585                 590

Glu Lys Leu Gln Arg Ala Asp Glu Gln Lys Glu Phe Met Arg Pro Glu
        595                 600                 605

Phe Leu Phe Leu Thr Val Ala Glu Ala Val Ala Ser Leu Ser Leu Lys
    610                 615                 620

Gly Pro Ser Leu Ser Asn Val
625                 630

<210>  30
<211>  660
<212>  PRT
<213>  Hordeum vulgare

<400>  30
Met Pro Arg Thr Val Ser Asp Gly Gly Glu Asp Phe Asp Gly Asp Val
  1               5                  10                  15

Cys Ser Gln Thr Ala Ser Gln Arg His Thr Asp Ser Thr His His His
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            20                  25                  30

His Gly Tyr Lys Val Gly Phe Pro Pro Ala Lys Gly Val Phe Ala Glu
         35                  40                  45

Phe Ala Glu Gly Val Lys Glu Thr Phe Phe Ala Asp Asp Pro Leu Arg
     50                  55                  60

Glu Tyr Lys Asp Gln Pro Arg Ser Lys Lys Leu Trp Leu Ser Leu Val
 65                  70                  75                  80

His Leu Phe Pro Val Leu Asp Trp Ser Arg Ser Tyr Thr Phe Gly Lys
                 85                  90                  95

Phe Lys Gly Asp Leu Val Ala Gly Leu Thr Ile Ala Ser Leu Cys Ile
            100                 105                 110

Pro Gln Asp Ile Gly Tyr Ala Lys Leu Ala Asn Leu Gln Pro His Val
        115                 120                 125

Gly Leu Tyr Ser Ser Phe Val Pro Pro Leu Ile Tyr Ala Leu Met Gly
    130                 135                 140

Ser Ser Arg Asp Ile Ala Ile Gly Pro Val Ala Val Val Ser Leu Leu
145                 150                 155                 160

Leu Gly Thr Leu Leu Gln Glu Glu Ile Asp Pro Val Lys Asn Pro Leu
                165                 170                 175

Glu Tyr Ser Arg Leu Ala Phe Thr Ala Thr Phe Phe Ala Gly Ile Thr
            180                 185                 190

Gln Ala Met Leu Gly Phe Phe Arg Leu Gly Phe Ile Ile Glu Phe Leu
        195                 200                 205

Ser His Ala Ala Ile Val Gly Phe Met Ala Gly Ala Ala Ile Thr Ile
    210                 215                 220

Ala Leu Gln Gln Leu Lys Gly Leu Leu Gly Ile Ala Lys Phe Thr Lys
225                 230                 235                 240

Lys Ser Asp Ile Ile Ser Val Met Glu Ser Val Trp Gly Asn Val Gln
                245                 250                 255

His Gly Trp Asn Trp Gln Thr Ile Leu Ile Gly Ser Ser Phe Leu Ala
            260                 265                 270

Phe Leu Leu Thr Thr Lys Tyr Ile Ala Lys Lys Asn Lys Lys Leu Phe
        275                 280                 285

Trp Val Ser Ala Ile Ala Pro Leu Ile Ser Val Val Ile Ser Thr Phe
    290                 295                 300

Cys Val Tyr Ile Thr Arg Ala Asp Lys Gln Gly Val Ala Ile Val Lys
305                 310                 315                 320

Asn Ile Lys Gln Gly Ile Asn Pro Pro Ser Phe Asp Leu Ile Tyr Trp
                325                 330                 335

Ser Gly Pro Tyr Leu Ala Lys Gly Phe Arg Ile Gly Val Val Ser Gly
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            340                 345                 350

Met Val Ala Leu Thr Glu Ala Ile Ala Ile Gly Arg Thr Phe Ala Ala
        355                 360                 365

Met Lys Asp Tyr Gln Ile Asp Gly Asn Lys Glu Met Val Ala Leu Gly
    370                 375                 380

Thr Met Asn Ile Val Gly Ser Met Thr Ser Cys Tyr Val Ala Thr Gly
385                 390                 395                 400

Ser Phe Ser Arg Ser Ala Val Asn Tyr Met Ala Gly Cys Lys Thr Ala
                405                 410                 415

Val Ser Asn Val Val Met Ala Ile Val Val Met Leu Thr Leu Leu Leu
            420                 425                 430

Ile Thr Pro Leu Phe Lys Tyr Thr Pro Asn Ala Ile Leu Ala Ser Ile
        435                 440                 445

Ile Ile Asn Ala Val Val Asn Leu Val Asp Tyr Glu Thr Ala Tyr Leu
    450                 455                 460

Ile Trp Lys Val Asp Lys Met Asp Phe Val Ala Leu Leu Gly Ala Phe
465                 470                 475                 480

Phe Gly Val Val Phe Ala Ser Val Glu Tyr Gly Leu Leu Ile Ala Val
                485                 490                 495

Ala Ile Ser Leu Gly Lys Ile Leu Leu Gln Val Thr Arg Pro Arg Thr
            500                 505                 510

Ala Leu Leu Gly Asn Leu Pro Arg Thr Thr Ile Tyr Arg Asn Val Glu
        515                 520                 525

Gln Tyr Pro Glu Ala Thr Lys Val Pro Gly Val Met Ile Val Arg Val
    530                 535                 540

Asp Ser Ala Ile Tyr Phe Thr Asn Ser Asn Tyr Val Lys Glu Arg Ile
545                 550                 555                 560

Leu Arg Trp Leu Arg Asp Glu Glu Glu Gln Gln Gln Glu Gln Lys Leu
                565                 570                 575

Ser Lys Thr Glu Phe Leu Ile Val Glu Leu Ser Pro Val Thr Asp Ile
            580                 585                 590

Asp Thr Ser Gly Ile His Ala Leu Glu Glu Leu Leu Lys Ala Leu Glu
        595                 600                 605

Lys Arg Lys Ile Gln Leu Ile Leu Ala Asn Pro Gly Pro Ala Val Ile
    610                 615                 620

Gln Lys Leu Arg Ser Ala Lys Phe Thr Asp Leu Ile Gly Asp Asp Lys
625                 630                 635                 640

Ile Phe Leu Ser Val Gly Asp Ala Val Lys Lys Phe Ala Pro Lys Ser
                645                 650                 655

Ser Leu Asn Val
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660

<210> 31
<211> 685
<212> PRT
<213> Arabidopsis thaliana

<400> 31

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Met Ser Tyr Ala Ser Leu Ser Val Lys Asp Leu Thr Ser Leu Val Ser
  1               5                  10                  15

Arg Ser Gly Thr Gly Ser Ser Ser Ser Leu Lys Pro Pro Gly Gln Thr
             20                  25                  30

Arg Pro Val Lys Val Ile Pro Leu Gln His Pro Asp Thr Ser Asn Glu
         35                  40                  45

Ala Arg Pro Pro Ser Ile Pro Phe Asp Asp Ile Phe Ser Gly Trp Thr
     50                  55                  60

Ala Lys Ile Lys Arg Met Arg Leu Val Asp Trp Ile Asp Thr Leu Phe
 65                  70                  75                  80

Pro Cys Phe Arg Trp Ile Arg Thr Tyr Arg Trp Ser Glu Tyr Phe Lys
                 85                  90                  95

Leu Asp Leu Met Ala Gly Ile Thr Val Gly Ile Met Leu Val Pro Gln
            100                 105                 110

Ala Met Ser Tyr Ala Lys Leu Ala Gly Leu Pro Pro Ile Tyr Gly Leu
        115                 120                 125

Tyr Ser Ser Phe Val Pro Val Phe Val Tyr Ala Ile Phe Gly Ser Ser
    130                 135                 140

Arg Gln Leu Ala Ile Gly Pro Val Ala Leu Val Ser Leu Leu Val Ser
145                 150                 155                 160

Asn Ala Leu Gly Gly Ile Ala Asp Thr Asn Glu Glu Leu His Ile Glu
                165                 170                 175

Leu Ala Ile Leu Leu Ala Leu Leu Val Gly Ile Leu Glu Cys Ile Met
            180                 185                 190

Gly Leu Leu Arg Leu Gly Trp Leu Ile Arg Phe Ile Ser His Ser Val
        195                 200                 205

Ile Ser Gly Phe Thr Ser Ala Ser Ala Ile Val Ile Gly Leu Ser Gln
    210                 215                 220

Ile Lys Tyr Phe Leu Gly Tyr Ser Ile Ala Arg Ser Ser Lys Ile Val
225                 230                 235                 240

Pro Ile Val Glu Ser Ile Ile Ala Gly Ala Asp Lys Phe Gln Trp Pro
                245                 250                 255

Pro Phe Val Met Gly Ser Leu Ile Leu Val Ile Leu Gln Val Met Lys
            260                 265                 270

His Val Gly Lys Ala Lys Lys Glu Leu Gln Phe Leu Arg Ala Ala Ala
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        275                 280                 285

Pro Leu Thr Gly Ile Val Leu Gly Thr Thr Ile Ala Lys Val Phe His
    290                 295                 300

Pro Pro Ser Ile Ser Leu Val Gly Glu Ile Pro Gln Gly Leu Pro Thr
305                 310                 315                 320

Phe Ser Phe Pro Arg Ser Phe Asp His Ala Lys Thr Leu Leu Pro Thr
                325                 330                 335

Ser Ala Leu Ile Thr Gly Val Pro Ile Leu Glu Ser Val Gly Ile Ala
            340                 345                 350

Lys Ala Leu Ala Ala Lys Asn Arg Tyr Glu Leu Asp Ser Asn Ser Asp
        355                 360                 365

Leu Phe Gly Leu Gly Val Ala Asn Ile Leu Gly Ser Leu Phe Ser Ala
    370                 375                 380

Tyr Pro Ala Thr Gly Ser Phe Ser Arg Ser Ala Val Asn Asn Glu Ser
385                 390                 395                 400

Glu Ala Lys Thr Gly Leu Ser Gly Leu Ile Thr Gly Ile Ile Ile Gly
                405                 410                 415

Cys Ser Leu Leu Phe Leu Thr Pro Met Phe Lys Tyr Ile Pro Gln Cys
            420                 425                 430

Ala Leu Ala Ala Ile Val Ile Ser Ala Val Ser Gly Leu Val Asp Tyr
        435                 440                 445

Asp Glu Ala Ile Phe Leu Trp Arg Val Asp Lys Arg Asp Phe Ser Leu
    450                 455                 460

Trp Thr Ile Thr Ser Thr Ile Thr Leu Phe Phe Gly Ile Glu Ile Gly
465                 470                 475                 480

Val Leu Val Gly Val Gly Phe Ser Leu Ala Phe Val Ile His Glu Ser
                485                 490                 495

Ala Asn Pro His Ile Ala Val Leu Gly Arg Leu Pro Gly Thr Thr Val
            500                 505                 510

Tyr Arg Asn Ile Lys Gln Tyr Pro Glu Ala Tyr Thr Tyr Asn Gly Ile
        515                 520                 525

Val Ile Val Arg Ile Asp Ser Pro Ile Tyr Phe Ala Asn Ile Ser Tyr
    530                 535                 540

Ile Lys Asp Arg Leu Arg Glu Tyr Glu Val Ala Val Asp Lys Tyr Thr
545                 550                 555                 560

Asn Arg Gly Leu Glu Val Asp Arg Ile Asn Phe Val Ile Leu Glu Met
                565                 570                 575

Ser Pro Val Thr His Ile Asp Ser Ser Ala Val Glu Ala Leu Lys Glu
            580                 585                 590

Leu Tyr Gln Glu Tyr Lys Thr Arg Asp Ile Gln Leu Ala Ile Ser Asn
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```
        595                 600                 605

Pro Asn Lys Asp Val His Leu Thr Ile Ala Arg Ser Gly Met Val Glu
    610                 615                 620

Leu Val Gly Lys Glu Trp Phe Phe Val Arg Val His Asp Ala Val Gln
625                 630                 635                 640

Val Cys Leu Gln Tyr Val Gln Ser Ser Asn Leu Glu Asp Lys His Leu
                645                 650                 655

Ser Phe Thr Arg Arg Tyr Gly Gly Ser Asn Asn Asn Ser Ser Ser Ser
            660                 665                 670

Asn Ala Leu Leu Lys Glu Pro Leu Leu Ser Val Glu Lys
        675                 680                 685
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